



RESEARCH ARTICLE

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New finding of the Phoma leaf spot of the varnish tree (*Koelreuteria paniculata*) in Himachal Pradesh

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ABSTRACT : A new foliar disease of *Koelreuteria paniculata* tree is reported during continuous surveys conducted at Solan district of Himachal Pradesh during August, 2015 to December, 2015. On the basis of morphological characteristics the fungus, the fungus was identified as *Phoma eupyrena* which produces symptoms on the leaves as numerous small, pale, irregular spots which are light brown with dark black margins and blighting appearance at the apex region initially. *Phoma eupyrena* form pycnidia, whose range varied between 240-250 μm in diameter and conidia are hyaline, short, cylindrical, mostly straight and unicellular. Conidial size ranged between 3-6 x 1.5-3 μm .

KEY WORDS : *Phoma eupyrena*, *Koelreuteria paniculata*, Pycnidia

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INTRODUCTION

Koelreuteria paniculata is flowering plant belongs to the family Sapindaceae, native to eastern Asia. This is known by various names in different regions such as goldenrain tree, pride of India, China tree and varnish tree. It is popularly grown as an ornamental tree in temperate regions all across the world because of the aesthetic appeal of its flowers leaves and seed pods (Gupta, 1945). Several cultivars have been selected for

garden planting, including 'Fastigiata' with a narrow crown, and 'September Gold', flowering in late summer. The seeds of the varnish tree are edible when roasted, but not commonly consumed. *Koelreuteria paniculata* is rarely attacked by the insect pest; occasionally may be attacked by Boxelder bug and scale. The overwintering stages of the scales are controlled by spraying with horticultural oils. A lesser number of plant pathogens known to infect the *Koelreuteria paniculata* tree such as Verticillium wilt which causes the wilting and death of the infected leaves, and canker (Gilman and Watson, 1993). In order to identify the diseases of *Koelreuteria paniculata* in the growing plantation in the Dr. Y.S. Parmar University of Horticulture and forestry continuous surveys from August, 2015 to December, 2015 were carried out.

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EXPERIMENTAL METHODS

The infected leaves of the *Koelreuteria paniculata* tree were taken and brought to the laboratory for microscopic analysis. Morphological characteristics of the fungus was studied with help of microscope and pycnidia and pycnidiospores size were measured with micrometry as per the methods followed by Boerema (1964) and McGinnis (1980).

EXPERIMENTAL RESULTS AND ANALYSIS

The fungus produces symptoms on the leaves as numerous small, pale, irregular spots which are light brown with dark black margins (Fig. 1 and 2). The fungus survives on living plants as pycnidia, which produce water-splashed pycnidiospores, or with plant debris as pycnidia. Pycnidia are globose, membranous to leathery, darkly pigmented with ostiole. Conidia are produced in



1



2

Fig. 1 and 2 : Symptoms of Phoma leaf spot

abundance within the pycnidia on narrow thread-like phialides, which are hardly differentiated from the inner pycnidial wall cells. Conidia are globose to cylindrical, one-celled, hyaline, and are usually extruded in slimy masses from the apical ostiole (Brazauskienė and Petraitiene, 2004). Pycnidia of *Phoma eupyrena* are black, about 250 μm . Conidia are hyaline, short, cylindrical, mostly straight, and unicellular (Fig. 3). Conidia are 3-6 x 1.5-3 μm (James, 1983 and Brun *et al.*, 2010). The size and shape of pycnidium and conidia resembles those of *Phoma eupyrena* hence known to be the cause of leaf spot on *Koelreuteria paniculata*. This is probably the first record on this host as no information could be gathered from the literature to show the pathogen attack on this tree in India and elsewhere in world.

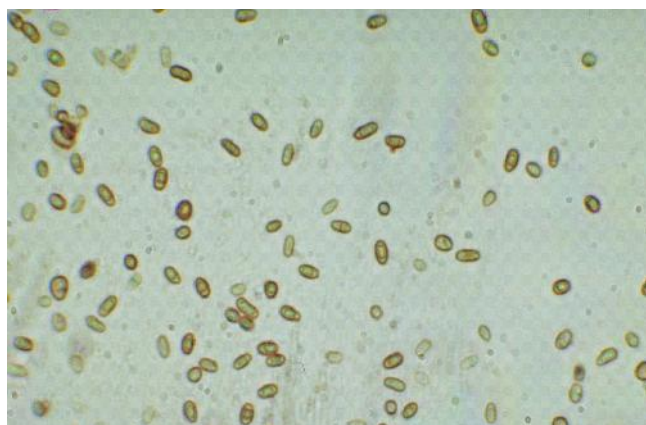


Fig. 3 : Conidia of *Phoma eupyrena*

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